

IVANOV, E. V., SHESTERIN, I. S., TAMBIYEV, A. KH., and TELITCHENKO, M. M., Chair of Hydrobiology Moscow State University

"Using a High-Frequency Generator Based on Line Scanning to Study the Luminescence of Biological Objects in a High-Frequency Discharge"  
Moscow, Nauchnyye Doklady Vysshey Shkoly. Biologicheskiye, No 1, 1970, pp 117-118

Translation: The method of photography in a high-frequency discharge can be used to determine the physiological state of biological objects. An electron-tube line scanning generator or a relatively simple design was employed in the experiments.

The possibility of photographing biological objects in high-frequency currents was first discovered by the Soviet investigator S. D. Kirlian (1949). The principle that he elaborated for observing the electrical state of living objects offers great promise for describing the behavior of leaves of different plants and human skin (V. Kh. Kirlian and S. D. Kirlian, 1964; V. S. Lysikov et al., 1964) in a high-frequency field, and for studying the primary energy shifts in the action of radiant energy, specifically, laser radiation (V. M. Inyushin, 1967). The same method has been used to study inanimate objects, e.g., to photograph the surfaces of metal ores and rocks

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IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vysshey Shkoly. Biologicheskkiye Nauki, No 1, 1970, pp 117-118

(V. I. Mikhalevskiy and G. S. Frantov, 1966).

The method of photography in a high-frequency discharge was used to determine the physiological state of the following biological objects under normal and various experimental conditions: leaves of the flowering plant *Elodea canadensis*, algae of the genus *Chara*, and the crustacean *Daphnia magna*.

The luminescence of living hydrobionts was compared with that of other organisms killed in different ways (fixation with 40% formalin, heating to 40° and 100° C).

The method was valuable in assessing the physiological state of living organisms. The live algae, *Elodea* leaves, and daphnids luminesced differently from killed organisms. Characteristically, the various injurious factors (temperature, fixation with formalin) affected the pattern of luminescence in different ways.

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IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vseshey Shkoly.  
Biologicheskkiye Nauki, No 1, 1970, pp 117-118

In the device described by S. D. Kirlian, a spark generator is used to produce high-frequency currents. V. S. Lysikov et al. (1964) also used a spark generator (in a simplified version) to obtain photographs of leaves from higher plants. We developed and employed an electron-tube line scanner with an original circuit for high-frequency photographing (Fig. 1). Its distinguishing features include a relatively simple design, the possibility of assembling the generator from units and parts produced by Soviet industry, safety and reliability, low weight and small size. The frequency can be smoothly increased from 10 to 120 kHz, the voltage from 0 to 20 kv.

All these advantages, as well as our experience in using the method, lead us to recommend the generator for research on the electrical state of both living and nonliving objects.

Bibliography

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USSR - IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vusshay Shkoly Discharge." In the collection: O biologicheskoy deystvii mono khromaticheskogo krasnogo sveta (Biological Effects of Mono chromatic Red Light). Alma-Ata.

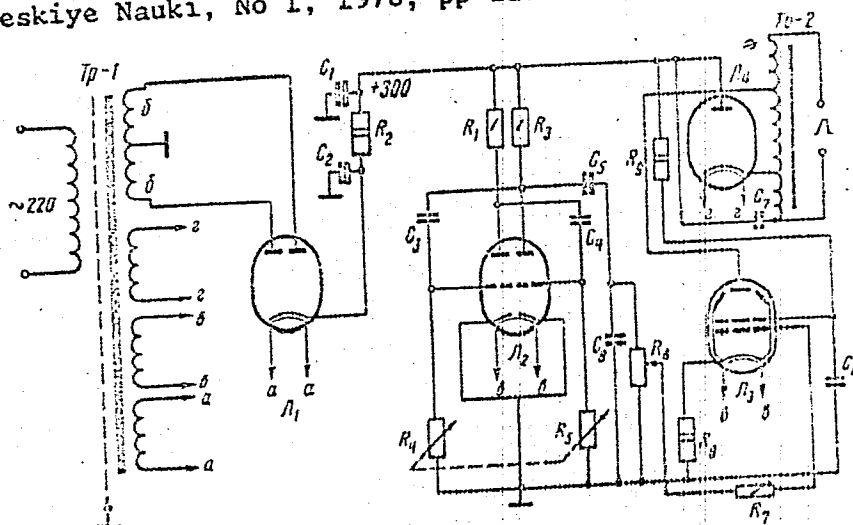
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Lysikov, V. S., Machulan, V. I., Krupenin, K. A., and Brik, P. L. 1964. "A Simplified Generator for Photographing Biological Objects by S. D. Kirlian's Method." Tr. Kishinevsk. s.-kh. in-ta (Transactions of the Kishinev Agricultural Institute), Vol 37.

Mikhalevskiy, V. I. and Frantov, G. S. 1966. "Photographing the Surfaces of Metal Ores With High-Frequency Currents," Shurn. nauchn. i prikladnoy fotografii i kinematografii (Journal of Scientific and Applied Photography and Cinematography). Vol 2, No 5

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IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vusshey Shkoly.  
Biologicheskoye Nauki, No 1, 1970, pp 117-118



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USSR

IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vusshey Shkoly. Biologicheskkiye Nauki, No 1, 1970, pp 117-118.

Рис. 1. Схема высокочастотного генератора на базе строчной развертки.  $C_1, C_2$  — 40 мкФ X 450 в;  $C_3, C_4$  — 50 пФ;  $C_5$  — 0,025 мкФ;  $C_6$  — 0,5 мкФ;  $C_7$  — 0,05 мкФ;  $C_8$  — 300 пФ;  $C_9, C_{10}, C_{11}, C_{12}, C_{13}$  — рабочее напряжение 500 в;  $R_1$  — 1 кОм;  $R_2$  — 20 кОм;  $R_3$  — 390 кОм;  $R_4$  — 390 кОм;  $R_5$  — 390 кОм;  $R_6$  — 1,5 Мом;  $R_7$  — 300 Ом;  $R_8$  — 200 Ом;  $R_9$  — 10 кОм;  $L_1$  — 5П13С;  $L_2$  — 6Н8С;  $L_3$  — 6П13С;  $L_4$  — 6П10П; Тр-1 — силовой трансформатор; Тр-2 — высокочастотный выходной трансформатор.

Fig. 1. Circuit of a high-frequency generator based on line scanning.  $C_1, C_2$  - 40 microfarads X 500 v;  $C_3, C_4$  - 50 picofarads;  $C_5$  - 0.025 microfarads;  $C_6$  - 0.5 microfarad;  $C_7$  - 0.05;  $C_8$  - 300 picofarads;  $C_9, C_{10}, C_{11}, C_{12}, C_{13}$  - working voltage 500 v;  $R_1$  - kilohm;  $R_2$  - kilohm;  $R_3$  - kilohms;  $R_4$  - 390 kilohms;  $R_5$  - 390 kilohms;  $R_6$  - 1.5 megohms;  $R_7$  - 300 ohms;  $R_8$  - 200 ohms;  $R_9$  - 10 kilohms;  $L_1$  - 5Ts3S;  $L_2$  - 6N8S;  $L_3$  - 6P13S;  $L_4$  - 6P10P; Tr-1 power transformer; TP-2 - high-frequency output transformer

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USSR

GOBOV, G. V., TAMBOVTSEV, V. S.

"Effect of Concentration and Conditions of Crystallization on the Absorption and Luminescence Spectra of Frozen n-Parafin Solutions of Diphenylene Sulfide"

Minsk, Zhurnal Prikladnoy Spektroskopii, September 1970, pp 425-430

Abstract: The variation in the spectra of diphenylene sulfide in frozen n-parafin solutions (77°K) with variations of the concentrations and freezing rate is studied. The range of concentrations for phosphorescence is wider than for fluorescence and absorption in all the solvents, which fact is related to a smaller perturbation of the medium of the triplet level than of the excited singlet level. A decrease in the freezing rate leads to a significant narrowing of the range of concentrations in which quasi-bright-line spectra are observed. The nature of the variation of the spectra with a variation in the concentration of the solutions testifies to the validity of the hypothesis of different centers responsible for each spectral series.

There are two illustrations and four bibliographic references.

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UDC 612.388.014.46-087.45

SMIRNOVA, R. D.; NOVIKOV, Yu. V.; YUDINA, T. V.; KOSIMINA, L. F.;  
TANBONTSEVA, A. M.; Candidates of Medical Sciences, Moscow  
Scientific Research Institute of Hygiene imeni F. F. Erisman

"Permeability of the Histochematic Barriers and Some Biochemical  
Indices After the Combined Effect of a Number of Substances"

Moscow, Gigiyena i Sanitariya, No 7, 1971, pp 19-23

Abstract: Radioisotope ( $P^{32}$ ) study was conducted of the effects  
of chronic administration of six substances (isopropylbenzene  
and its hydroperoxide, propylbenzene, butylbenzene, acetophenone,  
and dimethylphenylcarbinol) on the permeability of various rat  
organs (liver, kidneys, spleen, pancreas, thyroid, adrenals,  
testes, hypophysis), blood catalast activity, vitamin (C and  
carotene) metabolism, and liver function. The combination of  
organic compounds was found to decrease the permeability of the  
histohematic barriers of the hypophysis and testes and, to a

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USSR

SMIRNOVA, R. D., Gigiyena i Sanitariya, No 7, 1971, pp 19-23

lesser extent, spleen and kidneys. Catalase activity and vitamin C content was lower while the carotene content was higher in the experimental animals than in the controls. Liver function (bromsulphalein test) was also impaired. However, the animals' external appearance, behavior, and weight changes were indistinguishable from the control during the nine months of the experiment.

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USSR

TAMM, B. G.

"Description of SAP-2 Language for Programming of the Operation of Digital Program Controlled Machines"

Algoritmy i Algoritmich. Yazyki [Algorithms and Algorithmic Languages -- Collection of Works], No 5, Moscow Acad. Sci. USSR Computer Center, 1971, pp 67-78, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V512 by the author).

Translation: A description is presented of the SAP-2 specialized programming language, designed for linguistic modeling of the operation of metal-cutting machine tools with digital programmed control. The language is oriented toward untrained users -- designers and technologists -- and therefore is quite simple. The SAP-2 translator is programmed for the Minsk series computers.

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USSR

TAMM, I. Ye., and VOLOGODSKIY, V. B.

UDC 539.12.01

"The Use of a Curved Momentum Space to Construct a Nonlocal Quantum Field Theory"

Moscow, Teoriya Vzaimodeystviya Elementarnykh Chastits pri Vysokikh Energiyakh  
—Sbornik, Trudy Ordena Lenina Fizicheskogo Instituta im. P. N. Lebedeva, Vol  
57, 1972, pp 5-28

Abstract: The article gives a generalization of the usual perturbation theory for a curved momentum space, postulating a method of summing the momenta which enter into the argument of the delta functions corresponding to Feynman diagram vertices. It is shown that direct generalization of the theory for a curved momentum space does not culminate in success because of the presence of infinities (angular divergences) in the matrix elements and violation of the condition of unitarity. Another method is given for constructing the S matrix in a curved momentum space in which the S matrix is written as an antichronologically charge-ordered exponent. The S matrix automatically proves to be unitary and apparently free of infinities. However,

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Tamm, I. Ye., and VOLOGODSKIY, V. B., Teoriya Vzaimodeystviya Elementarnykh Chastits pri Vysokikh Energiyakh -- Sbornik, Trudy Ordena Lenina Fizicheskogo Instituta im. P. N. Lebedeva, Vol 57, 1972, pp 5-28

since in its construction the identity  $\theta(x)[\mathcal{L}(x), \mathcal{L}(0)]_- = \theta(x)\theta[(x+\tau^2)][\mathcal{L}(x), \mathcal{L}(0)]_-$  (where  $\mathcal{L}(x)$  is the Lagrangian,  $\tau$  an arbitrary vector lying in the upper light cone) was used to preserve relativistic invariance, a difficulty arises due to violation of the correspondence principle in the sense of a limiting transition to local theory. This difficulty is discussed in an appendix. Other appendices give basic formulas for the volume element and the sum of the momenta in the curved momentum space, as well as some limitations on the form of the metric tensor.

The authors thank many staff members of their division, particularly D. A. KIRZHNITS and V. YA. FAYNBERG for their criticism and advice.

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USSR

UDC 547.341

GALISHEV, V. A., CHISTIKLETOV, V. N., PETROV, A. A., and TAMM, L. A.,  
Leningrad Technological Institute imeni Lensovet  
"1,3-Dipolar Addition to Unsaturated Compounds. XXXI. Reactions of Organic  
Azides With  $\alpha,\beta$ -Unsaturated Compounds of Trivalent Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1470-1472  
Abstract: The reactions of organic azides of  $\alpha,\beta$ -unsaturated phosphines were  
investigated. It was shown that in the cases studied, the double bond is not  
involved in the reaction so that novel unsaturated phosphineimines are formed.

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USSR

UDC 547.341

TAMM, L. A., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad Technological  
Institute imeni Lensovet

"1-3-Bipolar Addition to Unsaturated Compounds. 30 Communication. Reaction  
of  $\alpha,\beta$ -Acetylene Phosponites With Nitrileimines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2178-  
2183

Abstract: Reactions of alkynylphosponites with C,N-substituted nitrile-  
imines lead to the formation of cyclic phosphinates regardless of the type  
of substituent at the  $\beta$ -carbon atom of the acetylenic group and the nature  
of the substituent of the nitrileimine. The reaction begins by a nucleo-  
philic attack of the phosphorus atom on the electron deficient C-atom of  
the nitrileimine forming cyclic methylenephosphoranes which are converted  
to quasiphosponium salts. The latter undergo Arbuzov rearrangement form-  
ing respective cyclic phosphinates.

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I A M M, Maret

Mathematics

T A M M, Maret

# TECHNICAL TRANSLATION

FTIC-23-121-72

## ENGLISH TITLE:

A Natural Initial Solution and Sensitivity Analysis of the Optimum Solution in Linear Programming Problems

## FOREIGN TITLE:

Estimovanie Nachal'noye Resheniya i Analiz Chuvstvitel'nosti Optimal'nogo Resheniya v Zadachakh Lineynogo Programirovaniya

## AUTHOR:

Maret Tamm

## SOURCE:

VESTI NOV TEADOSTE AKADEMIA TOGETISED (INFORMATIKA AKADEMIA) (MAY, 1972) (P. 1-10)

Estimated not attributable

Translated for FSI by Leo Kanner Associates, Redwood City, California (Sussex)

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TAMM, L. A., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad Technological Institute

"1,3-Dipolar Addition to Unsaturated Compounds. XXIX. Reactions of  $\alpha, \beta$ -Alkynylphosphines with Nitrileimines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1926-1930

Abstract: An investigation of the structural effects of C,N-substituted nitrile-amines on the course of their reactions with various  $\alpha, \beta$ -acetylenephosphines was carried out. It was established that the reactions of  $\alpha, \beta$ -acetylenephosphines with nitrileamines, in contrast to  $\alpha, \beta$ -ethylenephosphines, are less sensitive to the steric hindrance at the  $\beta$ -carbon atom of the ethynyl group and towards the nature of substituents at the carbon atom of the nitrileamines. For example, in the reaction of ethynyl-, propynyl-, and phenylethynyldiphenylphosphines with C-(p-nitrophenyl)- and C-carboethoxy-N-phenylnitrileimines, only cyclic phosphonium salts are formed. This probably due to higher activity of the sp-hybridized carbon atom in the reactions with nucleophilic reagents.

C. Operations Research

USSR

TAMM, M. I.

"A Compromise Solution of the Problem of Linear Programming with Several Goal Functions"

*Ekonomika i mat. metody*. [Economics and Mathematical Methods], 1973, 9, No 2, pp 328-329 (Translated from *Referativnyy Zhurnal - Kibernetika*, No 8, 1973, Abstract No 8 V446 by M. Kazakova)

Translation: Suppose we must maximize the goal functions

$$C_i^T X, i=1, \dots, s,$$

(1)

under the conditions

$$AX = b, X \geq 0.$$

(2)



USSR

TAMM, M. I., Ekonomika i mat. metody., 1973, 9, No 2, pp 328-329

Suppose  $\max C_i^T X = M_i$ . The problem of minimization of  $w$  under conditions (2) and

$$M_i - C_i^T X \leq |M_i| w.$$

(3)

is studied. The compromise plan produced lies at one edge of polyhedron (2) (in contrast to the approach of Juttler, RZHMAT, 1968, 2V347, in which the compromise plan is generally an internal point).

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USSR

UDC 615.371:576.858.23/.03+576.858.23.01(474.2

TAMM, O. M., KUSLAP, T. R., and KUTSAR, K. K., Ministry of Health, Estonian USSR, and the Tallin Institute of Epidemiology, Microbiology, and Hygiene

"The Use of Live Polio Vaccine and Enterovirus Circulation in the Estonian SSR During 1965-1970"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 76-81

Abstract: Prior to 1940 morbidity of poliomyelitis in Estonia ranged from 1 to 10 per 100,000 population. Following World War II the morbidity rose steadily until in 1958 an epidemic due to poliovirus type 1 occurred in southeastern Estonia, quickly spread to the southern rayons, and attained an incidence of 82.5 per 100,000 population. The use of Salk vaccine during 1957-1958 did not alleviate the situation. In January 1959 use of the tri-valent Sabin vaccine was instituted. The initial immunization encompassed 53% of the entire population from 3 months to 60 years of age; 81.6% of those under 18 years were immunized. Morbidity dropped sharply in the 2nd quarter of 1959. Mass immunizations were repeated in 1960 and 1961; in 1962 mass immunizations were conducted for those up to 18 years of age.

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USSR

TAMM, O. M., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 76-81

The elimination of the polioviruses from circulation in the general population was accompanied by their replacement with other enteroviruses. In 1962 about 200 cases of aseptic meningitis due to Coxsackie virus B5 were reported, and in 1970 about 100 cases. In addition, from 1959 to 1970 34 polio like cases were reported; in none was poliovirus isolated nor an antibody titer to polio detected. However, Coxsackie B virus was isolated from seven of these cases. Epidemiologic studies showed an increased incidence of isolation of Coxsackie B5 virus, and to a lesser extent of B3 and ECHO 7, from the general population, which is highest during the summer-fall season. Similar findings have been reported when sewage water from different Estonian cities were tested for the presence of enteroviruses.

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USSR

UDC 518:517.944/.947

TAMME, E.

"Solution of a Fourth-Order Quasilinear Boundary Value Problem by the Finite-Difference Method"

Uch. zap. Tartus. un-ta (Scientific Notes of Tartu University), No 253, 1970, pp 258-275 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B963, by I. Shelikhova)

Translation: Using the finite-difference method, the author presents a solution for a fourth-order quasilinear boundary value problem in a  $p$ -dimensional orthogonal parallelepiped which is approximated by a nonlinear difference boundary value problem with a second order of accuracy, given the condition that its coefficients and the solution are smooth. The rate of convergence of the finite-difference method is investigated. Based on the principle of contracted mappings, convergence conditions are proven for a simple iterative process which is used in solving the nonlinear difference problem. The derivations make heavy use of a priori obtained evaluations of the solution to the linear difference problem. Uniform a priori evaluations of the solution to the linear difference problems are derived for the cases  $p = 1$  and  $p = 2$  that permit the convergence conditions of the finite-difference and iterative methods to be revised.

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USSR

UDC: 621.375.4

TAMMET, Kh. A.

"On Selecting Low-Frequency Operating Conditions for an Amplification Stage Based on Field-Effect Transistors"

Tr. Tallin. politekhn. in-ta (Works of the Tallinn Polytechnical Institute), 1970, A, No 291, pp 39-46 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11DI44)

Translation: The current-voltage output characteristic of a field-effect transistor is approximated by a power function as a basis for determining the conditions of selection and method of calculating the drain-source and gate-source voltages of a field-effect transistor to maximize voltage gain of the RC stage on low and medium frequencies. In this regard, it is assumed that the load impedance, the supply voltage of the stage and the parameters of the field-effect transistor are known beforehand. The results of the theoretical analysis are confirmed by experimental data. Five illustrations, bibliography of eight titles. Resumé.

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USSR

UDC 621.382.322

TAMMET, KH. A., SHIFF, G.I.

"On Some Problems Of An Approximation Of The Volt-Ampere Characteristics Of Field Effect Transistors"

Tr. Tallin. politekhn. in-ta (Works Of The Tallin Polytechnical Institute), 1970, A, No 291, pp 31-38 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B187)

Translation: The problem is considered of an approximation of the transfer characteristic of a field transistor by a step function and a method is presented for determining the parameters of an approximation of  $n$  and  $U_p$  for three experimentally determined points of the characteristic. An analysis is conducted of the errors of determining the parameters in question. In a saturation regime the final output impedance of the transistor is taken into account, which is approximated by a linear function. An account is given of a method for determining the output parameters of an approximation for two values of the output impedance. Computed and experimental characteristics of a field effect transistor are presented. 4 ill. 13 ref. Summary.

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USSR

UDC: 621.317.7

TAMMET, Kh. A.

"On Selecting the Passband of a Low-Frequency Noise Meter"

Tr. Tallin. politekhn. in-ta (Works of the Tallinn Polytechnical Institute),  
1970, A, No 291, pp 25-29 (From RZh-Radiotekhnika, No 11, Nov 70, Abstract  
No 11A277)

Translation: In measuring the low-frequency noise factor, a systematic error arises due to the frequency dependence of the spectrum of measurement noises in the frequency band of the meter. The author points out the possibility of reducing this error by shifting the frequency band of the meter with respect to the rated frequency, which makes it possible to expand the passband and thus reduce the integration time of the meter for a given class of spectral functions of the noises being measured. Three illustrations, bibliography of six titles. Resumé.

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--THEORY OF MUON DEPOLARIZATION IN MESOATOMS -U-  
AUTHOR--TAMMET, E.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(4), 840-5  
DATE PUBLISHED-----70  
  
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TOPIC TAGS--MUON, DEPOLARIZATION, MAGNETIC MOMENT, HAMILTONIAN  
  
CONTROL MARKING--NO RESTRICTIONS  
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CIRC ACCESSION NO--AP0136493 UNCLASSIFIED PROCESSING DATE--04DEC70  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE E SHELL WITH  
NONCOMPENSATED MAGNETIC MOMENT ON THE MUON POLARIZATION IN MESOATOMS  
WITH AN ARBITRARY NUCLEAR MOMENTUM IS STUDIED THEORETICALLY. THE  
SYSTEM IS DESCRIBED BY A SPIN HAMILTONIAN. A GENERAL EQUATION AND  
APPROXIMATED FORMULAS FOR CALC. OF THE MUON POLARIZATION ARE DERIVED.  
THE EFFECT UNDER CONSIDERATION TURNS OUT TO BE COMPARABLE WITH THE  
EFFECT OF THE NUCLEAR MOMENTUM ON THE MUON POLARIZATION.  
FACILITY: INST. KIBERN., TALLIN, USSR.

UNCLASSIFIED

USSR

UDO 533.922

IVANOV, V.A., ~~TAMCYKIN, V.V.~~ [Scientific-Technical Radiophysics Institute]

"The Correlation Theory Of A Back-Scattering Field In A Magnetoactive Plasma"

Izv. VUZ: Radiofizika, Vol XV, No 2, Feb 1972, pp 172-182

**Abstract:** The problem is considered of the back scattering of electromagnetic waves in an inhomogeneous magnetoactive plasma which contains random inhomogeneities of the electron concentration. A calculation is made with the narrow radiation pattern of the receiving and transmitting antennas taken into account. An expression is found for the back-scattering field. The autocorrelation and the function of cross-correlation of ordinary and non-ordinary waves are calculated for the case of weak gyrotropia ( $u \ll 1$ ). The correlation of the amplitudes and phase of the normal waves is determined, and the relation of the average phase difference  $\bar{\theta}_p$  and spread  $\theta_p$  with reference to the average value  $\bar{\theta}_p - \bar{\theta}_p$  [the bar indicates statistical averaging] is found with the average characteristics of the medium. It is shown that measurement of the magnitude  $\theta_p - \bar{\theta}_p$  makes it possible to determine the local concentration of electrons in the dispersion volume. The authors thank N.G. Denisov for discussion of the work and for valuable comments. 1 fig. 14 ref. Received by editors, 19 May 1971.

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USSR

UDC 533.922

IVANOV, V. A., TAMOYKIN, V. V., Scientific Research Radio Physical Institute

"Correlation Theory of the Back-Scattering Field in a Magnetically Active Plasma"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 2, 1972, pp 172-182

**Abstract:** A study was made of the problem of backscattering of electromagnetic waves in an inhomogeneous magnetically active plasma containing random inhomogeneities of the electron concentration. The study was performed under the assumption of narrow radiation patterns of the transmitting and receiving antennas. The time-space correlation functions of the field of individual normal waves and their mutual correlation were calculated. The effect of the inclination of the Earth's magnetic field on the statistical characteristics of the received signal was discovered.

The correlation of the amplitudes and phases of the normal waves was found on the basis of the derived formulas, and the relation of the mean phase difference  $\bar{\theta}_p$  and the scattering  $\theta_p$  with respect to the mean value  $|\theta_p - \bar{\theta}_p|$  [the bar stands for statistical averaging] to the mean characteristics of the medium was discovered. Measuring the value of  $|\theta_p - \bar{\theta}_p|$  permits determination 1/2

USSR

IVANOV, V. A., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,  
Vol XV, No 2, 1972, pp 172-182

of the local electron concentration in the scattering space. The case of weak  
gyrotropy was considered.

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UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--EMISSION AND PROPAGATION OF ELECTROMAGNETIC WAVES IN CHAOTICALLY  
INHOMOGENEOUS MEDIA -U-

AUTHOR--(02)-RYZHOV, YU.A., TAMOYKIN, V.V.

COUNTRY OF INFO--USSR

SOURCE--IZVUZ RADIOFIZIKA, VOL. 13, NO. 3, 1970, P. 356-387

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TOPIC TAGS--ELECTROMAGNETIC WAVE, RADIO EMISSION, WAVE PROPAGATION,  
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CONTROL MARKING--NO RESTRICTIONS

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PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0110112

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. SURVEY OF PROBLEMS CONCERNING THE ELECTRODYNAMICS OF RANDOMLY INHOMOGENEOUS MEDIA, WITH EMPHASIS ON ASPECTS RELATED TO THE MEAN FIELD AND TO THE CONCEPT OF THE EFFECTIVE PERMITTIVITY TENSOR. THE MEAN FIELD AND THE EFFECTIVE PERMITTIVITY TENSOR ARE ANALYZED FOR ISOTROPIC AND ANISOTROPIC RANDOMLY INHOMOGENEOUS MEDIA. THE PERTURBATION METHOD IS APPLIED, AND THE LIMITING CASES OF SMALL AND LARGE SCALE INHOMOGENEITIES ARE TREATED. AN ISOTROPIC MEDIUM WITH ANISOTROPIC INHOMOGENEITIES IS ANALYZED, AND ATTENTION IS GIVEN TO THE RADIATION FROM AN ELEMENTARY ELECTRIC DIPOLE IN AN INHOMOGENEOUS MEDIUM. THE RADIATION FROM A THIN METALLIC ANTENNA IS ALSO EXAMINED, TOGETHER WITH THERMAL EMISSION AND THE EMISSION FROM A UNIFORMLY MOVING CHARGE IN A MEDIUM WITH INHOMOGENEITIES. FACILITY: GOR'KOVSKII GOSUDARSTVENNYI UNIVERSITET, GORKI, USSR.

UNCLASSIFIED

USSR

UDC: None

RYZHOV, Yu. A. and TAMOYKIN, V. V.

"Electromagnetic Wave Radiation and Propagation in Chaotic Nonhomogeneous Media"

Gorkiy, Izvestiya VUZov SSSR Radiofizika Vol 13, No 3, 1970, pp 356-387

Abstract: This is a review article dealing with a subject directly related to many problems in astronomy, radio astronomy, radio navigation, radar, sonar, communications, solar physics, the interplanetary medium, the earth's ionosphere, acoustics, optics, etc. The review concentrates on problems in the electrodynamics of randomly nonhomogeneous media. It is divided into three sections: the first concerns the average field in an isotropic medium with random nonhomogeneities; the second relates to anisotropic chaotically nonhomogeneous media; the third concerns electromagnetic radiation in a medium with random nonhomogeneities. Some of the items discussed are: the tensor of the medium's

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USSR

RYZHOV, Yu. A., et al, Izvestiya VUZov SSSR Radiofizika Vol 13,  
No 3, 1970, pp 356-387

dielectric permeability; an approximation of the perturbation  
method; the magnetoactive plasma; and heat radiation in a chaotically nonhomogeneous medium.

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USSR

UDC: 539.4:624.011

TAMPLOV, F. F., KROKHALEV, V. G.

"Sandwich Panels Using a Corrugated Metal Frame and a Polymer Filler"

V sb. VI Soveshchaniye-seminar po obmenu opytom str-va v surovykh klimat. usloviyakh, 1970. T. 4, vyp. 1 (Sixth Seminar and Conference on Exchange of Experience in Construction Under Severe Climatic Conditions, 1970--collection of works, Vol. 4, No 1), Krasnoyarsk, 1970, pp 55-62 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4V767)

Translation: The paper describes a structural design for a sandwich panel using a corrugated plate as the lower sheathing, a polymer filler, and a pyramidal sheet as the upper sheathing. Five test specimens measuring 3.6 x 2 m were made for experimental study. The outer and inner sheets of the panels were made from galvanized steel. The panels were loaded by standard 20 kg cast iron weights. The load was applied by stages. The displacements and fiber deformations were measured by deflectometers and electronic strain gauges. Z. L. Gil'gur.

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USSR

UDC 624.074.001.24+539

GAVRISH, V. S., SHAPOVALOV, A. P., TAMUROV, N. G., TANTSURA, V. YA.,  
Zaporozh'ye Affiliate of Dnepropetrovsk Metallurgical Institute

"Study of the Stability of Cylindrical Shells Weakened by Circular Openings  
Beyond the Elasticity Limit"

Kiev, Prikladnaya mekhanika, No. 11, Nov 71, pp 105-109

Abstract: A series of experiments on shells fabricated with high precision was conducted to determine the effect of circular cuts on the stability of cylindrical shells under axial compression. The radii of the openings, the number of openings, and their mutual position were varied in the samples tested. The samples were fabricated of thin-walled tubes obtained by high-precision rolling on a special mill. The tube material was heat-resistant steel with a diameter of 46 mm, an average radius of 22.8 mm, a wall thickness of 0.4 mm, and a length of 135 mm. A total of 200 shells were tested to obtain values of the critical forces. The critical force for shells with constant dimensionless parameters was determined on no less than three samples. The spread in the values of the experimental critical forces fluctuated within a 3% range, indicating the careful preparation of the experiments. Three values of the experimental critical

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USSR

GAVRISH, V. S., et al, Prikladnaya mekhanika, No. 11, Nov 71, pp 105-109

experimental forces were determined:  $T_c$ , the lower value corresponding to the moment of the appearance of plastic reduction at the contour of the opening in the zone of maximum perturbation of the compressing stresses;  $P_k$ , the upper value corresponding to the beginning of the development of plastic deformation over the entire weakened cross section (the growth in radial and longitudinal displacements without an increase in load); and  $P_0$ , the upper value of the critical forces without the weakening opening. In the shells tested,  $P_0 = 1.4 \cdot 10^4$  n. The parameter  $\omega = \rho^2/R\delta$  was used to evaluate the effect of weakening openings on shell stability, where  $\rho$  is the radius of the weakening opening,  $R$  is the radius of the shell, and  $\delta$  is the wall thickness. It was shown that the appearance of plastic folding at the edge of the opening for a shell with  $\omega < 1$  coincides in time with the appearance of plastic waves over the generatrix in the unweakened zones of the cell. A comparison of critical forces obtained experimentally for unweakened shells and shells weakened by small openings showed that they are practically the same (differing by no more than 4%) and therefore one can assume that  $P_0 = P_k = P_c$  for the characteristic  $\omega < 1$ . For shells with  $\omega > 1$ , a loss in stability is of a local character and also begins at the edges of the openings coinciding with the zones of maximum compressing forces. It can be concluded that for  $h/\rho > 3.5$ , where  $h$  is the distance between openings and the openings are on the same side with a constant value of  $\omega$  and  $h$  and symmetry over the height of the shell that displacements of the first pair of openings and the value of the critical force for any number of openings will be the same as for shells weakened by two openings.

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1/2 040  
UNCLASSIFIED  
TITLE--DYNAMIC LOADING OF POLYMER MATERIALS -U- PROCESSING DATE--27NOV70  
AUTHOR-(03)-KOKOSHVILI, S.M., TAMUZS, V., SHAPIRO, G.S.  
COUNTRY OF INFO--USSR  
SOURCE--MEKH. POLIM. 1970, 6(2), 326-38  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS  
TOPIC TAGS--DYNAMIC STRESS, POLYMER, PLASTIC MECHANICAL PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/0900 STEP NO--UR/0374/70/006/002/0326/0338  
CIRC ACCESSION NO--AP0134629  
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 80 REFS. DESCRIBING  
TEST METHODS AND THE THEORETICAL STUDIES DEALING WITH THE MECH.  
PROPERTIES AND THE PROPAGATION OF DYNAMIC STRESS WAVES IN POLYMERS.

FACILITY: INST. MEKH. POLIM., RIGA, USSR.

UNCLASSIFIED

USSR

UDC 517.948

TANANA, V. P.

"An Approximate Solution to Operator Equations of the First Kind and the Geometric Properties of Banach Spaces"

Kazan, Izvestiya Vysshikh Uchebnykh Zavedeniy, Matematika, No 7, Jul 71,  
pp 81-93

Abstract: The author first examines an operator equation of the first kind as expressed in equation (1). She then goes on to make use of the disparity method in solving such equation. By suggesting two theorems and proving them, the author generalizes the problem and offers basic definitions and properties thereof. Still using the disparity method, the author proposes a third theorem and offers proof for solving the  $\theta$  problem. She continues to offer a finite-dimensional approximation to the approximate solution of the  $\theta$  problem using still a fourth theorem which she proceeds to prove. Posing a second problem and employing the disparity method, the author gives four additional theorems with accompanying proof. Finally, the author discusses the regularity of the disparity method as a function of the geometry of Banach space. Here two more theorems are discussed and proved, involving construction of the operator,

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USSR

TANANA, V. P., Izvestiya Vysshikh Uchebnykh Zavedeniy, Matematika, No 7, Jul 71, pp 81-93

construction of the  $\theta$  problem on  $X$  space, and solution to the  $\theta$  problem by the disparity method. In conclusion, the author cites Theorem 11 but offers no proof or discussion thereof. Bibliography of 22 titles.

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USSR

UDC 661.143

BENDERSKAYA, L. P., KRAVCHENKO, M. D., TANANAYEV, A. N.

"Synthesis and Luminescent Properties of Yttrium Germanate Activated with Europium"

Sb. nauch. tr. VNII Lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of the All-Union Scientific Research Institute of Lumino-phors and Materials of Extreme Purity), 1972, vyp. 7, pp 69-71 (from RZh-Khimiya, No 6, (II), 1973, Abstract No 6L169)

Translation: The synthesis of yttrium germanate activated by  $\text{Eu}^{3+}$  is described. For the synthesis,  $\text{Y}_2\text{O}_3$  (of luminescent purity) and  $\text{GeO}_2$  (analytical purity) were used. They were mixed in the ratio of 1:1, 1:2, and 2:1. The powder mixture was ground in acetone; then it was dried, pulverized in an agate mortar and put in platinum crucibles. The calcining was carried out in a Silit furnace. The temperature was increased in 3 hours from 700 to 1,350°. Then the calcining was carried out at 1,350° with the same time interval. The  $\text{YGeO}_5$ ,  $\text{Y}_2\text{Ge}_2\text{O}_7$  and  $\text{Y}_4\text{GeO}_8$  were obtained with a ratio of  $\text{Y}_2\text{O}_3: \text{GeO}_2 = 1:1, 1:2, 2:1$  respectively.

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USSR

UDC 661.143

BENDERSKAYA, L. P., TANANAYEV, A. N., KERIMBEKOVA, N. A.

"Phase Composition of the Base of LR-1 Type Borostanate Luminophors"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of the All-Union Scientific Research Institute of Luminophors and Materials of Extreme Purity), 1972, vyp. 7, pp 66-68 (from RZh-Khimiya, No 6 (II), Abstract No 6L160)

Translation: A study was made of compounds formed in the  $MgO-B_2O_3-SnO_2$  system by x-ray diffraction analysis and infrared spectroscopy. The formation of a new phase during interaction of the oxides  $MgO$ ,  $B_2O_3$  and  $SnO_2$  differing from the structure of the known borostanate compounds is demonstrated. The initial components were of the following quality:  $MgO$  (of extreme purity),  $SnO_2$  (analytically pure),  $HgBO_3$  (of extreme purity). The homogenized charge was calcined at  $1,250^\circ$  for five hours.

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USSR

UDC 661.143.046.4

GOLUBEV, I. F., MIRONOV, K. YE., ~~TANANAYEV, A. N.~~, and KINDZHIBALO, L. N.

"Chemical Transformations During Heating of Mixtures of  $\text{BaHPO}_4$ ,  $\text{TiO}_2$ ,  $\text{BaF}_2$  and  $(\text{NH}_4)_2\text{HPO}_4$ "

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of All-Union Scientific Research Institute for Phosphors and Ultrapure Substances), 1971, vyp. 6, pp 7-18 (English summary) (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14L130 from summary)

Translation: A study was made by thermographic, roentgenographic and luminescent methods of analysis of the chemical interaction during heating of mixtures of  $\text{BaHPO}_4$ ,  $\text{TiO}_2$ ,  $\text{BaF}_2$  and  $(\text{NH}_4)_2\text{HPO}_4$ . Formation of the luminescent phase of  $2\text{BaO} \cdot \text{TiO}_2 \cdot \text{P}_2\text{O}_5$  from  $\text{BaHPO}_4$  and  $\text{TiO}_2$  begins at temperature  $> 800^\circ$  with the phase transformation of  $\text{Ba}_2\text{P}_2\text{O}_7$ . On the addition of  $\text{BaF}_2$  and  $(\text{NH}_4)_2\text{HPO}_4$  below  $400^\circ$  barium metaphosphate is formed, which plays the role of flux in the formation of  $2\text{BaO} \cdot \text{TiO}_2 \cdot \text{P}_2\text{O}_5$ . Bibliography with nine titles.

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USSR

UDC [621.362:538](022)

TANANAYEV, A. V.

"Hydraulics of Magnetohydrodynamic Machines"

Gidravlika magnitogidrodinamicheskikh mashin (cf. English above), Moscow, Atomizdat, 1970, 271 pp, ill. 1 r. 59 k. (from RZh-Elektrotehnika i energetika, No 9, Sep 70, Abstract No 9A120)

Translation: Various MHD machines are considered from the standpoint of hydraulics. Already known studies of the motion of a viscous incompressible fluid in tubes and in a boundary layer, including flows in the presence of a field, are generalized to flows in the flow channel of MHD machines. New results of theoretical and experimental studies of the hydraulic properties of linear MHD machines are given. The book is written for engineering, technical and scientific workers occupied with the planning and construction of MHD machines, and also for graduates and for students in the upper classes of colleges and universities of the corresponding specialties.

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1/2 046 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--HYDRAULICS OF MAGNETOHYDRODYNAMIC MACHINES -U-  
AUTHOR--TANANAYEV, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--(GIDRAVLICA MAGNITOGIDRODINAMICHESKIKH MASHIN) MOSCOW, ATOMIZDAT,  
1970, 270 PP  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--MAGNETOHYDRODYNAMIC FLOW, BOUNDARY LAYER FLOW, MAGNETIC FIELD  
EFFECT, HYDRODYNAMIC PROPERTY, PLASMA DEVICE, MONOGRAPH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/1261 STEP NO--UR/0000/70/000/000/0001/0270  
CIRC ACCESSION NO--AM0130254  
UNCLASSIFIED

272 046

CIRC ACCESSION NO--AM0130254

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0-

CHAPTER I PRINCIPLE OF ACTION OF MHD MACHINES AND CONSTRUCTIONAL  
SCHEMES OF MHD MACHINES 9. II FLOW IN PIPES AND IN BOUNDARY LAYER  
21. III MOTION OF LIQUID IN ELEMENTS OF HYDRAULIC SYSTEMS 106. IV  
INFLUENCE OF MAGNETIC FIELD ON FLOW IN PIPES AND BOUNDARY LAYER 154. V  
HYDRAULIC INVESTIGATIONS OF MHD MACHINES 199. VI EXPERIMENTAL  
APPARATUS, MODELS AND MEASUREMENT PROCEDURE 235. APPENDIX 251.  
LITERATURE 261. VARIOUS MAGNETOHYDRODYNAMIC MACHINES WERE EXAMINED  
FROM THE POSITION OF HYDRAULICS. THE BOOK ALSO PRESENTS NEW RESULTS OF  
THEORETICAL AND EXPERIMENTAL INVESTIGATIONS OF HYDRAULIC PROPERTIES OF  
LINEAR MHD MACHINES. THE BOOK WAS WRITTEN FOR ENGINEERING TECHNICAL AND  
SCIENTIFIC WORKERS, ENGAGED IN DESIGNING AND CONSTRUCTING MHD MACHINES,  
AND ALSO FOR POST GRADUATES AND STUDENTS OF ADVANCED COURSES OF  
UNIVERSITIES OF PERTINENT SPECIALTIES.

UNCLASSIFIED

USSR

UDC 546.65'173'185

ROZANOV, I. A., BERNIKOV, V. R., TANANAYEV, I. V., and CHEL'TSOV, P. A.,  
Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy  
of Sciences USSR Moscow

"Trimetaphosphimates of Multivalent Metals. I. Investigation of the Inter-  
action in the System  $\text{LaCl}_3\text{-Na}_3(\text{PO}_2\text{NH})_3\text{-H}_2\text{O}$ "

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 4, Dec 71, pp 872-874

Abstract: Sodium trimetaphosphimate --  $\text{Na}_3(\text{PO}_2\text{NH})_3 \cdot 4\text{H}_2\text{O}$  -- was obtained by  
hydrolysis of the phosphonitrile chloride trimer --  $(\text{PNCl}_2)_3$ .  $\text{LaCl}_3$  was then  
reacted with  $\text{Na}_3(\text{PO}_2\text{NH})_3^{3-}$  changing the initial ratio  $n$  of  $(\text{PO}_2\text{NH})_3^{3-}$  to  $\text{La}^{3+}$   
from 0.25 to 6. The mixture was then stirred for 24 hrs to reach an equili-  
brium state, and the solid separated from solution by filtration. The results  
of the analysis of the solution and solid showed that during the reaction of  
 $\text{Na}_3(\text{PO}_2\text{NH})_3$  with  $\text{LaCl}_3$  in the 0.25-1 range of  $n$  continuous decrease of the  
final concentration of  $\text{La}^{3+}$  takes place, equivalent to the quantity of tri-  
metaphosphimate added. The residual concentrations of  $(\text{PO}_2\text{NH})_3^{3-}$  are all in  
1/2

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USSR

ROZANOV, I. A., et al., Doklady Akademii Nauk SSSR, Vol 201, No 4, Dec 71, pp 872-874

the range of  $2 \cdot 10^{-4}$  g-ion/l -- corresponding to the solubility of the precipitate. In this range one solid phase is formed with  $n = 1$ , the composition of the product being  $\text{La}(\text{PO}_2\text{NH})_3 \cdot 5.5 \text{H}_2\text{O}$ . This product persists up to  $n = 2$ , after which the ratio begins to change, until at  $n = 5$  it reaches the level of 2. The product isolated at  $n = 5$  has the composition  $\text{Na}_3\text{La}[\text{PO}_2\text{NH}]_3 \cdot 2.8 \text{H}_2\text{O}$ . The first product is crystalline, the octahydrate is amorphous. Both materials are colorless, insoluble in water, alcohol, acetone, and ether; they dissolve with decomposition in concentrated HCl.

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036  
UNCLASSIFIED  
TITLE--CHROMIUM PHOSPHATE HEXAHYDRATE DEHYDRATION PRODUCTS -U-  
PROCESSING DATE--13NOV70  
AUTHOR--(04)--LAVROV, A.V., MEDVEDEV, A.A., CHUDINOVA, N.N., TANANAYEV, I.V.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 503-10  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--PHASE ANALYSIS, DEHYDRATION, CHROMIUM COMPOUND, PHOSPHATE,  
PAPER CHROMATOGRAPHY, IR SPECTRUM, X RAY ANALYSIS, THERMAL EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1994/1887  
CIRC ACCESSION NO--AP0115706  
STEP NO--UR/0363/70/006/003/0503/0510  
UNCLASSIFIED



2/2 036

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115706

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THERMAL DEHYDRATION OF CRPO  
SUB4.6H SUB2 O WAS STUDIED BY PAPER CHROMATOG., IR SPECTROSCOPY, AND X  
RAY RAY PHASE ANAL. AT SIMILIAR TO 300DEGREES AN AMORPHOUS PRODUCT  
FORMS WHICH CCNTAINS PYROPHOSPHATE IONS (TOGETHER WITH THE  
ORTHOPHOSPHATE), WHICH AT 1000DEGREES CHANGES TO BETA CRPO SUB4. AT  
1500DEGREES THE BETA PHASE CHANGES INTO AN ALPHA PHASE, WHICH CAN  
CONSIDERED AS THE CR OXYPYRORPHOSPHATE. FACILITY: INST. OBSHCH.  
NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DOUBLE BORATES OF RARE EARTH ELEMENTS AND BARIUM OF THE COMPOSITION  
LN SUB2 BA SUB3 (BO SUB3) SUB4 -U-  
AUTHOR-(03)-DZHURINSKIY, B.F., ALIYEV, O.A., TANANAYEV, I.V.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 592-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BORATE, RARE EARTH METAL, BARIUM COMPOUND, LANTHANUM,  
LUTETIUM, SINGLE CRYSTAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/0908 STEP NO--UR/0363/70/006/003/0592/0593  
CIRC ACCESSION NO--AP0118077  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118077

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTALS OF LA SUB2 BA SUB3(BO SUB3)SUB4 WERE PREPD. UNDER SYNTHESIS CONDITIONS CLOSE TO THOSE FOR THE SYNTHESIS OF DOUBLE BORATES OF RARE EARTHS AND SR AT 1100DEGREES. THE LIQ. AND THE SOLID PHASE WERE ANALYZED RELATIVE TO THE LA AND B CONTENT. THE LA SUB2 BA SUB3(BO SUB3)SUB4 CRYSTALS ARE COLORLESS AND ARE STABLE TO A SHARP DROP IN THE TEMP. FROM 1100DEGREES TO ROOM TEMP. LU SUB2 BA SUB3(BO SUB3)SUB4 WAS SYNTHESIZED BY GRADUALLY HEATING TO 700-800DEGREES A STOICHIOMETRIC MIXT. OF LU SUB2 O SUB3, H SUB3 BO SUB3, AND BACO SUB3 IN A PT CRUCIBLE. THE MIXT. WAS HELD AT 700-800DEGREES FOR 6 HR, WHEREUPON IT WAS COOLED, GROUND, AND FIRED AT 1000DEGREES FOR 3 HR. PERIODICALLY THE MIXT. WAS TAKEN OUT OF THE FURNACE, COOLED, CAREFULLY GROUND, AND AGAIN FIRED. THE IR ABSORPTION SPECTRA FOR LA SUB2 BA SUB3(BO SUB3) SUB4 AND LU SUB2 BA SUB3(BO SUB3)SUB4 ARE PRESENTED. THE M.P.S. WERE 1400DEGREES FRO LA SUB2 BA SUB3(BO SUB3) SUB4 AND 1100DEGREES FOR LU SUB2 BA SUB3(BO SUB3)SUB4. FACILITY: INST. OBSSHCH. NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

TANA VAYEV I.V.

# HIGH-TEMPERATURE CORROSION

(Article\* by Candidate of Chemical Science N.S. Tsiling, Moscow, Tezhenik Akademii Nauk SSSR, Russian, Vol 40, No 4, April 1971, pp 85-87)

APR 5 3 50 PM '71

"The need to create materials of construction which are resistant at high temperatures to various kinds of effects of the external environment is caused by the increasing application of such temperatures in a number of branches of engineering. Because of that, great interest was aroused in specialists by an All-Union conference on the mechanism of high-temperature corrosion and protection against it, held on 21-23 December 1970 in Moscow. It was organized by the Department of General and Technical Chemistry, the Institute of Physical Chemistry of the AS USSR and the Scientific Research Institute of Physics Imeni L. Ya. Karpov. Participating in the conference were more than 100 representatives of 10 scientific institutions and industrial enterprises from 25 cities of the country. Forty reports were heard, in which there were discussions of theoretical questions about the oxidation of metal, regularities of high-temperature corrosion of metals and protective coatings in gaseous media and fusions, and also the mechanism of formation of protective coatings.

Opening the conference, Ya. M. Koltyzkin, chairman of the Scientific Council for Problems in the Development of Measures to Protect Metals from Corrosion of the State Committee for Science and Engineering of the Council of Ministers USSR, characterized the main tasks facing investigators in that area and pointed out the need for coordination of the work being done by various scientific institutions. He emphasized that the requirements for high-temperature materials of construction are being relaxed. The development of methods of protecting materials experiencing the intensified effect of corrosion and erosion in the temperature range of 2000-3000° is acquiring special importance.

\* Meeting in Moscow.

The electrochemical nature of the corrosive destruction of a number of metals in fusions of alkaline halogenides and carbonates was demonstrated in the report of I. N. Ozeriyana and co-authors.

At the conference much attention was given to questions of the formation of protective coatings on metals and their influence on the properties of the coated metal. Thus, the report of A. Kh. Linder and co-authors showed the high erosive resistance of tungsten coatings obtained by gas-phase deposition under conditions of pulsed heating.

Closing the conference, I. V. Tumanov, chairman of the Scientific Council for "The physicochemical principles for operating new heat-resistant inorganic materials" of the USSR, noted the great importance of the conference that had been conducted and the need for a regular discussion of questions of high-temperature corrosion.

In the resolution adopted by the conference it was noted that for the successful protection of metals and the development of new heat-resistant compositions a clarification of mechanisms and regularities of high-temperature corrosion is necessary. It was decided to hold such conferences every other year, the main place to be allotted to reports devoted to fundamental problems of high-temperature corrosion.

It was recommended that work be intensified on the study of the mechanism of the interaction of metals and alloys in various aggressive media during irradiation with electrons, protons and other high-energy particles, and also investigation of the interaction of metals and non-metals in various types of compositions for the purpose of creating new fire-resistant and heat-resistant materials and coatings.

1/2 013  
UNCLASSIFIED  
TITLE--EFFECT OF NONAQUEOUS SOLVENTS ON COMPLEXING IN THE TITANIUM  
THIOCYANATE ORGANIC BASE SYSTEM -U-  
AUTHOR--(021)-TANANAYKO, M.M., LOZOVIK, A.S.  
PROCESSING DATE--04DEC70  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1070-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SOLVENT ACTION, TITANIUM COMPOUND, THIOCYANATE, COMPLEX  
COMPOUND, QUINOLINE, SOLVENT EXTRACTION, KETONE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1146  
STEP NO--UR/0078/70/015/004/1070/1073  
CIRC ACCESSION NO--AP0136566  
UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0136566

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF A SERIES OF NONAQ. SOLVENTS ON THE FORMATION, EXTN., AND OPTICAL PROPERTIES OF COMPLEX SALTS IN TI THIOCYANATE (I) ORG. BASE (DIANTIPYRYLMETHANE, ANTIPYRINE, QUINOLINE, AND DIPHENYLGUANIDINE) SYSTEM, THE BEST EXTG. AGENTS WERE CHCL SUB3 AND DICHLOROETHANE. ALCS. COMPETE WITH SCN PRIME2NEGATIVE FOR COORDINATION TO TI CAUSING FADING OF THE COLOR OF THE SOLNS. AND A SHIFT OF THE ABSORPTION MAX. TO SHORT WAVELENGTH REGION. KETONES GIVE STRONGLY COLORED SOLNS. WITH I AND ADDN. OF ORG. AMINES TO SUCH SOLNS. CAUSES PPTN. OF CORRESPONDING ONIUM SALTS OF (TI(NCS)) PRIME2NEGATIVE. IT IS ASSUMED THAT KETONES STRENGTHEN THE TI-NCS BONDS AND FAVOR FORMATION OF HIGHLY COLORED (TI(NCS) SUB6) PRIME2NEGATIVE. FACILITY: KIEV. GOS. UNIV., KIEV, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--MECHANISM GOVERNING THE FORMATION OF BAINITE STRUCTURE IN  
HYPEREUTECTOID STEELS -U-  
AUTHOR-(03)-LEVCHENKO, A.A., PIVOVAROV, V.M., TANANNO, I.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 329-334  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--STEEL MICROSTRUCTURE, BAINITE, HIGH CARBON STEEL, CARBIDE  
PHASE, ELECTRON MICROSCOPY, ALLOY PHASE TRANSFORMATION, HYPEREUTECTOID  
STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3003/0339 STEP NO--UR/0126/70/029/002/0329/0334  
CIRC ACCESSION NO--AP0129571  
UNCLASSIFIED



2/2 020

CIRC ACCESSION NO--AP0129571  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. THE FORMATION OF THE BAINITE  
STRUCTURE IN HIGH C STEELS BY ISOTHERMAL QUENCHING AT 300-500DEGREESC  
WAS STUDIED IN AN ELECTRON MICROSCOPE AND THE RESULTS WERE CORRELATED  
WITH X RAY DIFFRACTION DATA. THE CARBIDE PHASE PRECIPITATING IN THE  
INITIAL STAGES OF THE TRANSFORMATION HAD AN ACICULAR FORM AND RESULTED  
IN THE DEVELOPMENT OF RELIEF ON THE POLISHED SURFACE OF THE  
MICROSCETION. THE AUSTENITE DECOMPOSITION PRODUCTS OBTAINED IN THE  
TEMP. RANGE INDICATED CONSTITUTED A FERRITE-CARBIDE MIXTURE WITH A CLEAR  
PREFERRED ORIENTATION OF THE CARBIDE PARTICLES.

UNCLASSIFIED

USSR

UDC: 539.4

BUKATIN, O. V., KATIKHIN, V. D., LOZINSKIY, M. G., PASHKOV, P. O., TANANOV, A. I.

"Microstructural Study of Fatigue Destruction of a Multilayered Composition Made by Using High-Velocity Deformation"

V sb. Teoriya i prakt. vysokoskorost. deformatsii metal. materialov (Theory and Practice of High-Velocity Deformation of Metallic Materials--collection of works), Moscow, 1971, pp 22-23 (from RZh-Mekhanika, No 5, May 72, Abstract No 5V1036)

Translation: Methods of high-temperature metallography are used to study plastic deformation and fracture under conditions of a bending load on a sandwich panel made up of EI435 + 42Kh2GSNM + EI435. The experiments were done on the IMASH-10-68 machine in the temperature range from 20-800°C. An investigation was made of the effect of longitudinal and transverse bending loads on the rate and nature of fatigue crack propagation. It is shown that destruction of a layer of high-strength steel takes place with insignificant development of the deformation microrelief. The microrelief of the cladding is characterized by the formation of nonuniform and interrupted slip bands.

1/1

USSR

UDC 539.4

LOZINSKIY, M. G., LYUTTSAU, V. G., TANANOV, A. I.

"Details of the Structure of 'White Phases' Formed in the Process of High-Speed Collision of Metals"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of Works), Moscow, "Nauka", 1971, pp 88-92 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1466)

Translation: The microstructural characteristics of the structure of a two-layer steel (St 3 + Kh18N10T) plated with the aid of pulse loading are considered. The results of metallographic, x-ray microscopic, and micro-x-ray spectral analysis of the "white phases" formed during high-speed collision of metals are presented. It is shown that the combination of metallographic analysis with x-ray methods makes it possible to obtain new data on the structural characteristics of metals coated with the aid of pulse loading. Authors abstract.

1/1

USSR

UDC 541.515:547.785.1

TIKHONOVA, L. G., TANASEYCHUK, B. S., and LOGINOV, V. S., Mordavsk State University Imeni N. P. Ogarev, Saransk

"Investigation in the Area of Nitrogen-Containing Heterocyclic Free Radicals. XIX. 2-Aryl-4,5-(p-bromophenyl)imidazolyl Radicals and Their Dimers"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 73, pp 96-98

Abstract: Dimers of 2-aryl-4,5-di(p-bromophenyl)imidazolyls have been synthesized and the relationship between the rate of dissociation of the dimers into radicals and the nature of substituents in the 2-phenyl ring has been investigated. The effect of the substituents on the rate of dimer dissociation can be described by Hammett's equation. The presence of bromine atoms in p-positions of the 4- and 5-phenyl rings increases the contribution of the mesomeric component to the stabilization of the transition state of the dimer dissociation process in comparison to bis(triphenylimidazolyls).

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USER

UDC 547.785.1:541.132.515

TANASEYCHUK, B. S., BARDINA, A. A., KHOMENKO, A. A., Mordovian State University imeni N. P. Ogarev, Saransk

"Study of Nitrogen-Containing Heterocyclic Free Radicals. XIV. Dissociation Rate of Diaryl- $\beta$ -naphthylimidazolyl Radicals"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1255-1257

Abstract: The authors effected the synthesis of dimers of 4(5)-phenyl-5(4)- $\beta$ -naphthyl-2-arylimidazolyls and studied the effect of substituents in the 2-phenyl ring on the dissociation rate constant of the dimers. The synthesis of the dimers was accomplished by oxidation of  $\beta$ -naphthyldiarylimidazolyls with potassium ferricyanide in an aqueous-alcoholic solution of alkali. The dissociation rate constants of the dimers were studied by the method based on the reaction of the dimer with  $\alpha, \alpha$ -diphenyl- $\beta$ -picrylhydrazine. The dissociation rate was determined from the rate of accumulation of  $\alpha, \alpha$ -diphenyl- $\beta$ -picrylhydrazine in solution. As in the case of bistrisphenylimidazolyl, the dissociation rate of the dimer fits first-order kinetics. The effect of substituents in the phenyl

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USSR

TANASEYCHUK, B. S., et al, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1255-1257

ring on the dissociation rate of dimers of  $\beta$ -naphthyl-diarylimidazolyis is described by the Hammett equation, but the substituent effect is less than in the case of dimers of biphenyldiarylimidazolyis and triphenylimidazolyis. This is probably due to the fact that  $\beta$ -naphthyl makes a greater contribution than phenyl or biphenyl to the transition-state stabilization energy.

2/2

1/2 013  
UNCLASSIFIED  
TITLE--CHANGE IN THE ACTIVITY OF ALUMINOSILICATE AND ZEOLITE CATALYSTS  
DURING CLOGGING WITH COKE -U-  
AUTHOR--(03)--SABITOVA, V.F., TANATAROV, M.A., LEVINTER, M.YE.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 229-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ALUMINUM SILICATE, ZEOLITE, CATALYST ACTIVITY, COKE, CALCIUM  
OXIDE, ION EXCHANGE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/0010  
STEP NO--UR/0057/70/044/001/0229/0231  
CIRC ACCESSION NO--AP0132310  
UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0132310

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE  
ALUMINOSILICATE AND ZEOLITE CATALYST ACTIVITY ON THE ION EXCHANGE  
ABILITY WAS STUDIED ON PURE CATALYST SAMPLES AS WELL AS ON CATALYSTS  
PARTIALLY COVERED WITH COKE. 3 VARIOUS CATALYSTS WERE USED DURING THE  
WORK: GRANULATED ZEOLITE CAX (13.2 WT. PERCENT CAO), INDUSTRIAL  
AMORPHOUS ALUMINOSILICATE CATALYST (12.5 WT. PERCENT AL SUB2 O SUB3),  
AND ALUMINOSILICATE CATALYST WITH 20 WT. PERCENT ZEOLITE CAX (3.4PERCENT  
CAO, 11.4PERCENT AL SUB2 O SUB3). THE ION EXCHANGE CAPABILITY OF THE  
CATALYSTS (CA PRIME2 POSITIVE, H PRIME POSITIVE, AL PRIME3 POSITIVE) WAS  
MEASURED WITH NAOL SOLN. FACILITY: UFIN. NEFT. INST., UFA,  
USSR.

UNCLASSIFIED



1/2 022  
UNCLASSIFIED  
TITLE--ON RELIABILITY OF TWINED CONNECTIONS -U- PROCESSING DATE--23OCT70  
AUTHOR--~~TANAYEV~~, M.YA.  
COUNTRY OF INFO--USSR  
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 6, PP 168-171  
DATE PUBLISHED-----70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT  
TOPIC TAGS--EQUIPMENT FAILURE RATE, RESISTIVITY, CIRCUIT FAILURE,  
ELECTRONIC CIRCUIT ELEMENT, MECHANICAL FASTENER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0993 STEP NO--UR/0103/70/006/000/0168/0171  
CIRC ACCESSION NO--AP0124652  
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124652.

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE ARE CONSIDERED THE BASIC INDICES OF THE RELIABILITY OF ELECTRIC CONNECTIONS MADE ACCORDING TO THE METHOD OF TWINING, THE INDICES OBTAINED AS A RESULT OF TESTS AND PROCESSING THE STATISTICAL DATA ON FAILURES. IT IS SHOWN THAT WITH PROLONGED FUNCTIONING (FOR OVER 35 THOUSAND HOURS) OF THESE CONNECTIONS UNDER NORMAL CONDITIONS THEIR TRANSIENT RESISTANCE DOES NOT PRACTICALLY CHANGE, BUT THE EFFORT OF TIGHTENING THE TWINING INCREASES ON THE AVERAGE THE INTENSITY OF FAILURES DURING THE PERIOD OF THE ABSENCE OF THE WEAR AND TEAR FAILURES IS NOT MORE THAN 0,15 TIMES TO NEGATIVE PRIME9 CONNECTIONS PER HOUR.

UNCLASSIFIED

USSR

GORDON, V. S., TANAYEV, V. S.

"Deterministic Queueing System with One Instrument and Multilevel Penalty Functions"

Vychisl. Tekhn. v Mashinostr. Nauch.-Tekhn. Sb. [Computer Technology in Machine Building Scientific and Technical Collection], September 1971, pp 3-8 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V540, from the resume).

Translation: A statement is presented of the problem of determination of the waiting discipline in a line in a deterministic queueing system with one instrument and multilevel penalty functions, the corresponding models of integer linear programming are described and an algorithm for their solution by the method of branches and bounds is presented.

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- 65 -

USSR

TANEYEVA, A. I., and DOLGOPOL'SKAYA, M. A., Institute of the Biology of Southern Seas, Ukrainian SSR Academy of Sciences, Sevastopol

"The Effects of a Constant Magnetic Field on Artemia salina M. Edw. Eggs"  
Moscow, Biofizika, Vol 18, No 5, Sep/Oct 73, pp 944-946

Abstract: Moist and dry Artemia salina eggs were exposed to a 2000 erg permanent magnetic field (PMF) for 3, 6, 12, 24, 72, or 96 hours, followed by incubation at 23-25° until the larva hatched. The resultant data showed that exposure to PMF for up to 24 hours had a stimulating effect on hatching, while longer periods of exposure inhibited hatching. There were no statistically significant differences between dry and moist eggs.

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USSR

TANAYEVA, S. A., and SHVYREV, A. D.

UDC 536.2.01

"The Temperature Field of a Hollow Indefinite Cylinder Under Monotonous Initial Heating Conditions"

Minsk, Teplo i Massoobmen pri Nizkikh Temperaturakh, 1970, pp 38—42

Abstract : The experimental installation and the method for determination of the temperature dependence of the thermal conductivity, the coefficient of thermal diffusivity, and also the specific heat of materials by low temperatures are described. The suggested method is based on the solution of the equation of the transient thermal conductivity for a two-component indefinite cylinder by its heating up by an interior heat source of constant power under adiabatic conditions. By this method, all thermophysical characteristics of a wide class of materials in the temperature range of 4.2—400 °K can be determined with an accuracy of 5 % during a relatively short time interval of 4—5 hrs. One illustr., one table, seven formulas, five biblio. refs.

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USSR

POVARICH, M. P., TANAYEV, V. S.

"Synthesis of Graph-Plans of Algorithms for Calculation of Complex Arithmetic Functions"

Vychisl. Tekhn. v Mashinostr. Nauch.-tekhn. Sb. [Computer Equipment in Machine Building. Scientific and Technical Collection], June, 1971, pp 16-23 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V806 by S. Kuznetsova).

Translation: A method is described for synthesis of graph plans of algorithms for calculation of functions with intermediate arguments in the class of arithmetic functions, popular in the practice of automation of processes of planning in machine building. As a rule, these special arithmetic functions are fixed by tables of values of arguments and the corresponding values of functions. The algorithm for search for values of functions, based on the given values of arguments using the computer, is not complex and remains simple even with possible changes of information, although unjustifiably large volumes of memory and machine time are required for storage of these tables and performance of search procedures. The method suggested for fixation of information can be reduced to the known method of representation of information in the form

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USSR

POVARICH, M. P., TANAYEV, V. S., Vychisl. Tekhn. v Mashinostr. Nauch.-  
tekhn. Sb., June, 1971, pp 16-23.

of graph plans with the corresponding organization of search procedures. The process of construction of graph plans and algorithms for calculation of the corresponding arithmetic functions can be automated. A number of elementary operations are introduced on graph plans and are used to describe the process of construction of the graph plan of a complex function using the fixed graph plans of its component functions. For functions with large numbers of arguments, this process can be realized by computer.

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- 70 -

USSR

UDC 8.74

POVARICH, M. P., TANAYEV, V. S.

"Synthesizing Flow Charts of Algorithms for Computing Complex Arithmetic Functions"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Technology in Machine Building. Scientific and Technical Collection), 1971, June, pp 16-23 (From RZh-Matematika, No 1, Jan 73, Abstract No 1V806 by S. Kuznetsov)

Translation: The paper describes a method of synthesizing flow charts of algorithms for calculating functions with intermediate arguments in the class of arithmetic functions which have been extensively used in the practice of automating processes of design in machine building. As a rule, these special arithmetic functions are given by tables with the values of the arguments and their corresponding values of the functions. The algorithm for computer lookup of values of the functions in accordance with data on the arguments is not complicated even when there may be changes in the information; however, accommodation of these tables demands an unjustifiably large memory volume and expenditures of machine time on realizing search procedures for such quantities. The proposed method of information input reduces to conventional representation of the data in the form of flow charts with

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USSR

POVARICH, M. P., TANAYEV, V. S., Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb., 1971, June, pp 16-23

appropriate organization of the lookup procedures. The process of constructing the flow charts and algorithms for calculating the corresponding arithmetic functions can be automated. The paper introduces a number of elementary operations on flow charts, which are used to describe the process of constructing a flow chart of a complex function in accordance with given flow charts of its component functions. This process may be computerized for functions with a large number of arguments.

2/2

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USSR

UDC: 681.185.224

YAROSHENKO, N. A., DEMCHENKO, P. A., ~~TANCHUK, Yu. V.~~, Institute of Chemistry  
of High-Molecular Compounds, AS UkrSSR

"Synthesis of Ammonium Monoalkyl Pyrophosphates"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 45, No 5, May 72, pp 1114-1115

Abstract: New phosphorus-containing surface-active agents were synthesized by reacting higher aliphatic alcohols with pyrophosphoric acid. Octyl, decyl, dodecyl, tetradecyl, hexadecyl and octadecyl esters of pyrophosphoric acid were synthesized. Ammonia neutralization of these esters yielded triammonium salts of monoalkyl pyrophosphates. It was found that these salts are effective surface-active agents: an increase in the number of carbon atoms in the radical from 8 to 18 reduces the minimum surface tension at 60°C from 24.3 to 21.8 ergs/sq. cm.

1/1

Refractory Materials

2

USSR

UDC 669.01:666.76.001.5

KHARCHENKO, I. G., SAZHIN, V. A., STARUN, V. R., RADCHENKO, I. I., TANDURA, I. P., and KOVALENKO, A. N.

"Some Problems of Internal Heat Exchange During Roasting of Magnesian Refractories"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4, Jul-Aug 70, pp 49-51

Abstract: Experimental material on the effect of the heating rate of the heat-and mass-transfer processes on the thermophysical parameters of roasted refractories is summarized. The material, published for the first time in the Soviet literature, can be used as a basis for further studies for determination of effective methods of heat treatment of magnesian refractories.

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172 007

UNCLASSIFIED  
TITLE—EVALUATION OF AUTOPROTOLYSIS CONSTANTS FOR NONAQUEOUS SOLVENTS BY  
CORRELATION EQUATIONS, PK, F PKA MH -U-  
AUTHOR—(04)—KRESHKOV, A.P., ALDAROVA, N.SH., TANGANDV, B.B.,  
SLAVGRODSKAYA, M.V.  
COUNTRY OF INFO—USSR

SOURCE—ZH. FIZ. KHIM. 1970, 44(1), 241-3

DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—HYDROGEN ION CONCENTRATION, PROPANOL, BUTANOL, ACETONE,  
SOLVENT ACTION

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAE—2000/0875

CIRC ACCESSION NO—AP0124538

STEP NO—UR/0076/70/044/001/0241/0243

UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AP0124538  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. THEORETICAL RELATIVE ACIDITIES  
WERE CALCD. FOR NON AQ. SOLVENTS. A LINEAR CORRELATION PK SUBA EQUALS  
0.0145, E SUBB 9.71 (E SUBB IS THE RELATIVE ACIDITY) WAS FOUND FOR  
ALKANOLS. AUTOPROTOLYSIS CONSTS. ARE LINEARLY RELATED TO PK SUBA; PK  
SUBS EQUALS 0.843, PK SUBA 1.74. THIS EQUATION WAS USED FOR THE  
PREDICTION OF THEORETICAL ACIDITIES OF PROH, BUOH, N,HEXANOL,  
N,HEPTANOL, N,OCTANOL, ACETONE, MECOET, AND MECOPR. THE AUTOPROTOLYSIS  
OCNSTS. OF THE COMPOS. NOT USED IN THE CORRELATION ARE IN GOOD AGREEMENT  
WITH PUBLISHED DATA. FACILITY: MOSK. KHIM. TEKHNOL. INST. IM.  
MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

010  
UNCLASSIFIED  
PROCESSING DATE--16OCT70  
TITLE--CHEMICAL ANALYTICAL BEHAVIOR OF SULFUR CONTAINING ALIPHATIC  
DICARBOXYLIC ACIDS IN NONAQUEOUS SOLVENTS -U-  
AUTHOR--(03)--KRESHKOV, A.P., ALDAROVA, N.SH., TANGANDV, B.B.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 362-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC SOLVENT, ALIPHATIC DICARBOXYLIC ACID, CHEMICAL  
ANALYSIS, THIOL, DISSOCIATION CONSTANT, POTENTIOMETRIC TITRATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1993/0685  
CIRC ACCESSION NO--AP0113556  
STEP NO--UR/0075/70/025/002/0362/0368  
UNCLASSIFIED

010  
CIRC ACCESSION NO--AP0113556 UNCLASSIFIED PROCESSING DATE--16OCT70  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POTENTIOMETRIC TITRN. OF S CONTG.  
DICARBOXYLIC ACIDS IN A MECH, ETOH, HEXANOL, ACETOPHENONE, HCONME SUB2,  
AND MECH WAS STUDIED. ACIDITY CONSTS., PK SUBA FOR BETA, BETA  
PRIME, THIODIPROIONIC, DELTA, DELTA PRIME, THIODIVALERIC, OMEGA, OMEGA  
PRIME, THIODIENANTHIC, OMEGA, OMEGA PRIME, THIODIPELARGONIC, AND  
OMEGA, OMEGA PRIME, THIODIUNDECANIC ACIDS IN THE ABOVE SOLVENTS WERE  
EVALUATED. THE CONDITIONS FOR THE DETN. OF OMEGA, OMEGA  
PRIME, THIODICARBOXYLIC ACIDS IN NONAQ. SOLVENTS BY THE CALCN. OF THE  
TITRN. CONST., PK SUBT, VALUES WERE EXPLAINED. ALIPHATIC MONOHYDRIC  
NORMAL ALCS. HAVE A LEVELING ACTION ON OMEGA, OMEGA  
PRIME, THIODICARBOXYLIC ACIDS, WHICH BEHAVE IN ALC. SOLNS. AS WEAK ACIDS  
(PK SUBA EQUALS 9-11). THE DEPENDENCES PK SUBA-PK SUBS (CONST. OF  
SOLVENT AUTOPROTOLYSIS) AND PK SUBT-PK SUBS FOR THE STUDIED COMPS. HAVE  
A LINEAR CHARACTER, PROVING THE EFFECT OF THE SOLVENT ON THE ACID BASE  
PROPERTIES AND CONDITIONS OF QUANT. DETN. OF THE ACIDS. THE SEP. DETN.  
OF THE 2 CARBOXYL GROUPS OF DIACARBOXYLIC ACIDS CONTG. S IN THE C CHAIN  
INCREASE IN THE SERIES OF HCONME SUB2 IS SMALLER THAN MECH. IS SMALLER  
THAN ME SUB2 CO. A METHOD WAS DEVELOPED FOR THE QUANT. DETN. OF  
DICARBOXYLIC ACIDS IN DIFFERENTIATING SOLVENTS WITH A STD. C SUB6 H  
SUB6-MECH SOLN. OF ET SUB4 NOH. FACILITY: MOSCOW CHEM. TECHNOL.  
INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 681.3

TANI, Kh. I.

"Input of Graphic Information to Digital Computers"

Primeneniye Vychisl. Tekhn. v Elektrotekhn. Prom-sti [Use of Computer Equipment in the Electronics Industry], Moscow, 1971, pp 307-312, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V751 by V. Mikheyev).

Translation: Principles of design of a semiautomatic device for input of drawings and methods of representation of drawings and bodies in digital computer memory are studied. The operation of the drawing input and processing system is illustrated on a diagram. It is noted that further development of graphic information processing methods is required to solve the problem of synthesis of a machine description of a complex body.

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Acc. Nr.: AP0042379Ref. Code: UR0203  
JPR550162Anomalous Secular Variation on Kamchatka

(Abstract: "Anomalous Nature of Secular Variation on Kamchatka," by I. M. Pudovkin, A. A. Tanichev, T. A. Shadrina, Ye. E. Blagoveshchenskaya and A. A. Tikhomirov, Leningrad Department, Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation; Moscow, Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 173-175)

This is the second part of this study of secular variation on Kamchatka (for part I, see Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 170-173). Geomagnetic measurements were made in a network of stations in southern Kamchatka separated by an average distance of 10-15 km. Repeated observations were made on the assumption that during the stage of formation of volcanic lavas deep processes can create localized and shallow high-temperature hearths. The magnetic properties of rocks involved in these processes can change relatively rapidly, which should cause changes in the geomagnetic field and thereby give the dynamic magnetic characteristics of deep processes. Observations were made at 24 stations with 2 to 5 observations at each. The results of observations, reduced to the middle of the year, show that the nature of field changes is similar to that observed throughout the regional network. However, the field changes at different

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stations vary. Over a five-year period  $H$  changes from  $-31$  to  $+41 \gamma$  (the mean error in observing this component is  $8 \gamma$ ). During this same period  $D$  varies from  $-9.0$  to  $6.0'$  (observation error  $2.0'$ ). The structure of the field of anomalies of secular variation  $\Delta f_a$  is extremely complex. The regions of decrease in all magnetic elements are found in a relatively small region (diagrammatic maps of field components accompany the text). The results of observations at stations in the local net were reduced using data for the Yuzhno-Sakhalinsk Observatory and field variation stations. The configuration of the  $\Delta f_a$  isopors for annual periods indicates that the nature of this field changes somewhat from year to year but the sites of the anomalies persist. Judging from the map of structural geology of southern Kamchatka, there is a definite relationship between structural elements and anomalies of secular variation. There is also some relationship between the nature of the  $\Delta f_a$  field and solar activity. Since the secular variation anomalies on Kamchatka correlate with the elements of its structural-tectonic structure and with solar activity, it can be assumed that the causal relationship is of a double nature: 1) a change in the magnetic properties of rocks involved in deep processes and 2) presence of nonuniformity of electrical conductivity of deep layers in the crust and upper mantle.

19760340

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023

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--THEORY OF THE NUCLEAR MAGNETIC RESONANCE SUSCEPTIBILITY OF  
MULTIDOMAIN FERROMAGNETICS. II. LOCAL INTENSIFICATION FACTOR AND  
AUTHOR--(03)-TUROV, YE.A., TANKEYEV, A.P., KURKIN, M.I.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDINIE, APR. 1970, 29, (4), 747-756

DATE PUBLISHED----APR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR MAGNETIC RESONANCE, FERROMAGNETIC MATERIAL, ABSORPTION  
COEFFICIENT, MAGNETIC SUSCEPTIBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/1802

CIRC ACCESSION NO--AP0129170

STEP NO--UR/0126/70/029/004/0747/0756

UNCLASSIFIED

Z/2 023

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129170

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORY OF NUCLEAR MAGNETIC RESONANCE (NMR) IN MULTIDOMAIN FERROMAGNETICS IS PRESENTED WITH SPECIAL REF. TO THE QUESTION OF SUSCEPTIBILITY AND METHODS OF CALCULATING THE LOCAL AND INTEGRAL PARAMETERS ASSOCIATED WITH THIS PROPERTY. THE THEORY IS LARGELY BASED ON EXPRESSIONS DERIVED IN THE AUTHORS' EARLIER PAPER (LOC. CIT.). THE SHAPE OF THE DISPERSION CURVES IS ANALYZED AND THE BEHAVIOUR OF THE ABSORPTION COEFF. CLOSE TO THE NMR FREQUENCY IS INDICATED. THE POSSIBILITY OF OBSERVING THE CORRESPONDING EFFECTS EXPERIMENTALLY IS CONSIDERED.

UNCLASSIFIED

USSR

UDC: 621.396.61

RAKHOVICH, L. M., TAN'KO, A. V.

"On One Possibility of Indirect Synchronization in Multichannel Systems"

V sb. Vopr. elektrosvyazi (Problems of Electrical Communications--collection of works), Kiev, "Tekhnika", 1970, pp 39-42 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A60)

Translation: Conventional methods of producing tuning signals for synchronizing the transmitter and receiver in multichannel systems with phase difference keying may lead to appreciable errors in determining the boundaries of pulse trains where there is selective fading and concentrated interference in the channels. In this connection, the authors discuss a method of synchronizing the boundaries of pulse trains for a system with orthogonal carrier oscillations which are odd harmonics of the fundamental frequency. This method is based on comparison of two signal readings taken on the interval of orthogonality. A block diagram of a synchronizing unit is given. One illustration, bibliography of one title. N. S.

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VANIN, A. G., and TANKUS, A. Yu.

UDC 528.715:551.507.354

"The Use of the KA-26 Helicopter for Large-Scale Photographic Aerial Survey"  
Moscow, Geodeziya i Kartografiya, No 6, 1972, pp 35-40

Abstract: Problems of the use of the re-equipped KA-26 helicopter for large-scale photographic aerial survey were investigated jointly by the Central Scientific Research Institute of Geodesy, Aerial Survey and Cartography and the State Scientific Research Institute of Civil Aviation in the year 1971, using the experiences of the Polish People's Republic in performing analogous tasks. The experimental photographic aerial survey was conducted from 50-1000 m altitudes on a flat country area with 5-20 m soil elevations. The survey results are qualitatively evaluated by reference to tabulated data. It is concluded that the use of KA-26 helicopter for aerial photographing is most expedient by establishing and renewal of topographic maps of 1:5000 to 1:500 scales on lots of up to 20 km<sup>2</sup>. The application of the stereotopographical survey method for small areas with the use of aerial photographs made from KA-26 helicopter makes it possible to reduce by 30-50% the work and money inputs if compared with ground methods. One illustr., two tables.

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TANSKIY, V. I., Zoologicheskiy Zhurnal, Vol 50, No 9, 1971, pp 1,335-1,340

when they were fed wild grains. These polyphagous bugs displayed no special preferences for any grain variety or strain.

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USSR

UDC 595.754 Pentatomidae:591.53

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002203220020-8

TANSKIY, V. I., All-Union Institute of Plant Protection, Leningrad

"A Comparative Study of Food Specialization in Oligo- and Polyphagous Bugs From the Pentatomidae Family Which Damage Wheat in North Kazakhstan"

Moscow, Zoologicheskiy Zhurnal, Vol 50, No 9, 1971, pp 1,335-1,340

Abstract: Food reactions among Pentatomidae family bugs with different natural food requirements were investigated by feeding them wild grains, including couch-grass, wild rye, and several strains of wild wheat, as well as cultivated grains, including the Erythrospermum 5304 and Saratovskaya 29 wheat strains, the soft Akmolinka I wheat, and the hard Kustanayskaya I wheat. The oligophage *Aelia sibirica* Reut. thrived on wheat much better than on the wild steppe grains it normally consumes: its growth and development were accelerated, physiological state improved, and fertility increased. *A. sibirica* displayed a distinct preference for spring wheat, and the quality of the variety was of greater importance than the strain. On the other hand, the polyphagous *Carpocoris fusispinus* Boh. and *Dolycoris baccarum* were not particularly benefited by being fed wheat: their growth, overall development, weight, and survival were essentially the same as

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UDC 624.074.001.24+539

GAVRISH, V. S., SHAPOVALOV, A. P., TAMUROV, N. G., TANTSURA, V. YA.,  
Zaporozh'ye Affiliate of Dnepropetrovsk Metallurgical Institute

"Study of the Stability of Cylindrical Shells Weakened by Circular Openings  
Beyond the Elasticity Limit"

Kiev, Prikladnaya mekhanika, No. 11, Nov 71, pp 105-109

Abstract: A series of experiments on shells fabricated with high precision was conducted to determine the effect of circular cuts on the stability of cylindrical shells under axial compression. The radii of the openings, the number of openings, and their mutual position were varied in the samples tested. The samples were fabricated of thin-walled tubes obtained by high-precision rolling on a special mill. The tube material was heat-resistant steel with a diameter of 46 mm, an average radius of 22.8 mm, a wall thickness of 0.4 mm, and a length of 135 mm. A total of 200 shells were tested to obtain values of the critical forces. The critical force for shells with constant dimensionless parameters was determined on no less than three samples. The spread in the values of the experimental critical forces fluctuated within a 3% range, indicating the careful preparation of the experiments. Three values of the experimental critical

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GAVRISH, V. S., et al, Prikladnaya mekhanika, No. 11, Nov 71, pp 105-109

experimental forces were determined:  $T_c$ , the lower value corresponding to the moment of the appearance of plastic reduction at the contour of the opening in the zone of maximum perturbation of the compressing stresses;  $P_k$ , the upper value corresponding to the beginning of the development of plastic deformation over the entire weakened cross section (the growth in radial and longitudinal displacements without an increase in load); and  $P_0$ , the upper value of the critical forces without the weakening opening. In the shells tested,  $P_0 = 1.4 \cdot 10^4$  n. The parameter  $\omega = \rho^2/R\delta$  was used to evaluate the effect of weakening openings on shell stability, where  $\rho$  is the radius of the weakening opening,  $R$  is the radius of the shell, and  $\delta$  is the wall thickness. It was shown that the appearance of plastic folding at the edge of the opening for a shell with  $\omega < 1$  coincides in time with the appearance of plastic waves over the generatrix in the unweakened zones of the cell. A comparison of critical forces obtained experimentally for unweakened shells and shells weakened by small openings showed that they are practically the same (differing by no more than 4%) and therefore one can assume that  $P_0 = P_k = P_c$  for the characteristic  $\omega < 1$ . For shells with  $\omega > 1$ , a loss in stability is of a local character and also begins at the edges of the openings coinciding with the zones of maximum compressing forces. It can be concluded that for  $h/\rho > 3.5$ , where  $h$  is the distance between openings and the openings are on the same side with a constant value of  $\omega$  and  $h$  and symmetry over the height of the shell that displacements of the first pair of openings and the value of the critical force for any number of openings will be the same as for shells weakened by two openings.

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EXPANSION OF THE SPECTRAL REGION OF LIGHT SENSITIVE VARIATION IN  
THE VOLUME OF THIN COLOPHONY FILMS -U-  
AUTHOR-(05)-KUVSHINSKIY, N.G., TANTSYURA, L.YA., FEDOROVA, L.N.,  
NAKHODKIN, N.G., POCHINOK, V.YA.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOG. 1970, 15(1), 57-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--METHODS AND EQUIPMENT  
TOPIC TAGS--DYE, SPECTRUM, PHOTSENSITIVITY, PHOTOGRAPHIC FILM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1983/1485 STEP NO--UR/0077/70/015/001/0057/0059  
CIRC ACCESSION NO--AP0054341  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRAL SENSITIVITY REGION OF ROSIN (I) ABIETIC ACID (II) FILMS WAS EXPANDED BY PHOTSENSITIZED O TRANSFER WITH EOSIN, METHYLENE BLUE, OR CHLOROPHYLL (III). THE FILMS WERE EXPOSED TO FILTERED LIGHT FROM AN INCANDESCENT LAMP AND WERE SENSITIZED ONLY IN THE PRESENCE OF O, THE DYE PRESUMABLY CATALYZING THE PHOTSENSITIZED TRANSFER OF O WHICH CAUSED IRREVERSIBLE CHANGES IN II. THUS INCREASING THE VOL. OF THE IRRADIATED FILMS ON HEATING. THE SENSITIVITY WAS EXTENDED TO INCLUDE THE ENTIRE VISIBLE REGION; FILMS CONTG. III WERE SENSITIVE TO LAMBDA GREATER THAN 630 NM.

UNCLASSIFIED

USSR

UDC 681.332.65

PAVLENKO, Yu.S., TANTSYURA, N.A., et al.

"Series-to-Parallel Code Converter"

USSR Author's Certificate No. 273518, Filed 21/04/69, Published 18/09/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B226P).

Translation: Series-to-parallel code converters are known which use shift registers based, for example on a magnetostriction sound conductor. One shortcoming of these devices is the large number of elements used. The purpose of this invention is to simplify the circuit and design of the device, reduce the number of elements included in the device, and increase its reliability. In the series-to-parallel code converter suggested, this purpose is achieved by arranging the receiver coils, the number of which is equal to the number of bits in the parallel code, along the sound conductor, which has the magnetostriction effect. The receiving coils are connected to amplifiers which amplify the electric pulses of the parallel code coils. This allows the series code, without additional complex electronic circuits, to be converted to a parallel code by one signal which fixes the initial placement of the numbers in the delay line. 1 fig.

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USSR

UDC 678.675:678.06-419.8:677.521

CHUDINA, L. I., TANUNINA, P. M., LITOVCHENKO, S. I., CHERVINSKAYA, M. A.,  
CHERDASOV, M. V., VOROB'YEV, V. D., VLASOVA, K. N., KISELEV, B. A., and  
DAVYDOVA, I. F.

"Polyimides and Polybenzimidazols for Plexiglasses and Cements"

Moscow, Plasticheskiye Massy, No 4, 1973, pp 15-17

Abstract: The physical and chemical properties were determined for a number of thermoplastics -- such as the polyimides (PI), polyamidoimides (PAI), and polybenzimidazols (PBI) -- forming 15-68% solutions with different solvents. The PAI and PBI plus three of the PI resins formed linear structures; two of the PI resins formed a three-dimensional structure. The linear resins have a greater strength than the crosslinked below temperatures of about 300°C. The data are given in several tables and graphs.

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Inorganic Compounds

USSR

UDC 541.183

TANUTROV, I. N., KOSTENETSKIY, V. P., MOISEYEV, G. K., OKUNEV, A. I.

"Density, Surface Tension and Viscosity of  $\text{Na}_2\text{SO}_4$ - $\text{CaSO}_4$  Melts"

Tr. In-ta Elektrokhemii. Ural'sk. nauch. tsentr. AN SSSR (Works of the Institute of Electrochemistry. Ural Scientific Center, Academy of Sciences of the USSR), 1971, vyp. 17, pp 41-44 (from RZh-Khimiya, No 1 (I), Jan 72, Abstract No 1B1260)

Translation: Measurements are made of the temperature and concentration dependence of density ( $\rho$ ), surface tension ( $\sigma$ ) and viscosity ( $\mu$ ) of melts of  $\text{Na}_2\text{SO}_4$ - $\text{CaSO}_4$  at 960-1200°C. It is found that in the concentration range of 0-60 mol %  $\text{CaSO}_4$ ,  $\rho$  and  $\sigma$  decrease linearly with temperature, while  $\mu$  decreases exponentially. The behavior of surface tension and adsorption with concentration indicates the probability of existence of  $[\text{NaSO}_4]^-$  anions in  $\text{Na}_2\text{SO}_4$ - $\text{CaSO}_4$  melts (primarily on the surface), while the viscosities and energy of activation of viscous flow indicate the presence of  $[\text{Ca}_x(\text{SO}_4)_y]^{2x-2y}$  anions (chiefly within the body of the melt). Resume.

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USSR

UDC 577.155.02:576.851

LESHCHINSKAYA, I. B., BALABAN, N. P., and TANYASHIN, V. I., Kazan' State University

"Splitting of the Pyr-3'-P-5'-Pur Bond in DNA by Some Bacterial DNAases"

Moscow, Mikrobiologiya, No 5, 1971, pp 806-808

Abstract: Analysis of the substrate specificity of *Bacillus mesentericus* 19 K and *Bacillus subtilis* 13K DNAases, *Serratia marcescens* BU-211 ATCC-9986 nuclease, and pancreatic DNAase showed that all of these enzymes are capable of splitting the Pyr-3'-P-5'-Pur bond in DNA but in different degrees. Pancreatic DNAase hydrolyzed 1.5 to 2% of this phosphodiester bond, *Bac. mesentericus* DNAase 4 to 5%, *Bac. subtilis* DNAase 6.5 to 7%, and *Ser. marcescens* nuclease 8.0 to 8.5%. The degree of hydrolysis of the other types of DNA bonds by these enzymes (Pur-3'-P-5'-Pir, Pur-3'-P-5'-Pur, Pir-3'-P-5'-Pir) also varied - 9, 21.3, 24.0, and 34.7%, respectively.

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USSR

UDC 632.957:547.963.3

TAOVA, V. I., and LADONIN, V. F., All-Union Scientific Research Institute of Fertilizers and Agrology

"Effect of Lenacil on the Metabolism of RNA, Protein and Acid-soluble Nucleotides in Bean Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 6, 1971, pp 49-52

**Abstract:** The authors studied the effect of the herbicide lenacil on the metabolism of RNA, protein and acid-soluble nucleotides in etiolated and green bean plants. Hitherto there had been no data on this question in foreign or Soviet literature. It was found that lenacil in herbicidal concentrations sharply disturbs the growth and development of etiolated and green bean plants. A concentration of 6 mg/l stops root growth and kills the growing point. Lenacil disturbs nucleic-protein metabolism in all organs of etiolated and green bean plants. The amount of RNA, protein and acid-soluble nucleotides per gram of weight of raw green plant mass increases with increased concentration of the herbicide, but decreases per plant. In etiolated plants the increase in nucleotide content is accompanied by a decline in the RNA and protein content, probably as a result of disturbed RNA synthesis. A mechanism for the action of lenacil is suggested.

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1/2 C15 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--EFFECT OF EXPERIMENTAL THYROIDIN TOXICOSIS ON DEAMINASE ACTIVITY OF  
RABBIT ORGAN MITOCHONDRIA -U-  
AUTHOR--TAPPERGENOV, S.O.  
COUNTRY OF INFO--USSR  
SOURCE--PROBL, ENDOCRINOL. 1970, 16(3), 75-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--MITOCHONDRIUM, THYROID GLAND, CELL PHYSIOLOGY, ADENOSINE  
TRIPHOSPHATE, ENZYME ACTIVITY, PHOSPHORYLATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/0279 STEP NO--UR/0502/T0/016/003/0075/0077  
CIRC ACCESSION NO--AP0134084

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134084

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. THYROIDIN TOXICOSIS  
INCREASED DEAMINATION OF ATP AND ADP IN THE MITOCHONDRIA OF RABBIT  
BRAIN; HEART, LIVER, AND KIDNEYS. IPRAZIDE ADMINISTERED AT 100 MG-KG TO  
INTACT RABBITS SOMEWHAT INCREASED ADENINE NUCLEOTIDE DEAMINASE ACTIVITY  
ONLY IN THE BRAIN. RELEASE OF ADP AND ATP FROM THE SYSTEM REGULATING  
RESPIRATION AND PHOSPHORYLATION MAY DISRUPT MITOCHONDRIAL OXIDATIVE  
PHOSPHORYLATION DURING THYROIDIN TOXICOSIS. FACILITY: KHARKOV,  
MED. INST., KHARKOV, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFFECT OF PH OF THE SOLUTION AND THE NATURE OF DETERGENTS ON TIN  
PLATE -U-  
AUTHOR--(02)-NOVOSHINSKAYA, N.S., TAPEKHINA, L.V.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (2), 128-9  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR, MATERIALS  
TOPIC TAGS--TIN PLATING, CORROSION, SODIUM PHOSPHATE, DETERGENT, HYDROGEN  
ION CONCENTRATION  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/1029 STEP NO--UR/0322/70/000/002/0128/0129  
CIRC ACCESSION NO--AT0121625

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0121625

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF TIN PLATE  
CORROSION BY 1PERCENT SOLNS. OF COM. DETERGENTS AND NA SUB3 PO SUB4 ON  
PH AND TEMP. IS GIVEN. MAX. WT. LOSS AFTER 4 HR WAS AT PH 3 AND 10  
WHILE THE MIN WAS AT PH 7 UNDER THE STATIONARY CONDITIONS AT 20DEGREES  
AND AT PH 6 AT THE FLOW RATE 1 M,SEC AT 80DEGREES. FACILITY:  
KRASNODAR. POLITEKH. INST., KRASNODAR, USSR.

UNCLASSIFIED